

US009409032B2

(12) United States Patent

Brase et al.

(10) **Patent No.:**

US 9,409,032 B2

(45) **Date of Patent:**

Aug. 9, 2016

(54) SYSTEMS AND METHODS FOR MAKING AND USING CONNECTOR ASSEMBLY RETAINERS FOR ELECTRICAL STIMULATION SYSTEMS

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(*) Notice: Subject to any disclaimer, the term of this

patent is extended or adjusted under 35

U.S.C. 154(b) by 884 days.

(21) Appl. No.: 13/220,332

(22) Filed: Aug. 29, 2011

(65) **Prior Publication Data**

US 2012/0053646 A1 Mar. 1, 2012

Related U.S. Application Data

- (60) Provisional application No. 61/378,613, filed on Aug. 31, 2010.
- (51) **Int. Cl.**A61N 1/372 (2006.01)

 A61N 1/375 (2006.01)

(56) References Cited

U.S. PATENT DOCUMENTS

6,181,969	B1	1/2001	Gord
6,321,126	B1	11/2001	Kuzma
6,516,227	B1	2/2003	Meadows et al.
6,609,029	B1	8/2003	Mann et al.
6,609,032	B1	8/2003	Woods et al.
6,662,035	B2*	12/2003	Sochor 600/378
6,741,892	B1	5/2004	Meadows et al.
7,244,150	B1	7/2007	Brase
7,437,193	B2	10/2008	Parramon
7,672,734	B2	3/2010	Anderson
7,736,191	B1*	6/2010	Sochor 607/116
7,761,165	B1	7/2010	He
7,949,395	B2	5/2011	Kuzma
7,974,706	B2	7/2011	Moffitt
8,206,180	B1 *	6/2012	Kast et al 439/668
2005/0165465	A1	7/2005	Pianca
2006/0030918	A1	2/2006	Chinn
(Continued)			

(Continued) OTHER PUBLICATIONS

International Search Report and Written Opinion, International Application No. PCT/US2011/049594, mailed Nov. 30, 2011.

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(57) ABSTRACT

A control module for providing electrical stimulation of patient tissue includes a header disposed over an electrical interface. A connector assembly retainer is disposed in the header and coupled to the electrical interface. The connector assembly retainer includes a plurality of channels and a plurality of apertures defined at one end of the connector assembly retainer. Each of a plurality of connector assembly retainer one of the plurality of channels of the connector assembly retainer. Each of the plurality of connector assemblies is configured and arranged for receiving a portion of a lead or lead extension and coupling the lead or lead extension to the electronic subassembly.

20 Claims, 11 Drawing Sheets

